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JAPANESE

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# CLAIMS DETAILED DESCRIPTION

## TECHNICAL FIELD PRIOR ART

## EFFECT OF THE INVENTION

## TECHNICAL PROBLEM MEANS

## DESCRIPTION OF DRAWINGS

## DRAWINGS

[Translation done.]

## \* NOTICES \*

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## **DETAILED DESCRIPTION**

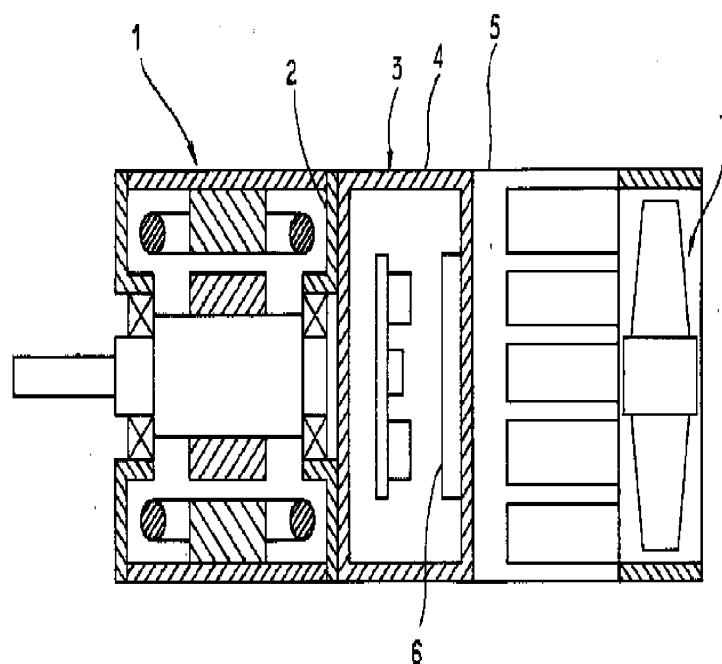
[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention relates to the motor with a control device

Drawing selection

Drawing 65



[Translation done.]

which attached to the motor in one the control device which carries out drive controlling of the motor.

[0002]

[Description of the Prior Art]An example of this kind of motor with a control device is shown in drawing 65. As shown in this drawing 65, the control device 3 which comprised an inverter unit, for example is formed in the bearing bracket 2 of the anti load side of the motor 1. The radiation fin 5 is attached to the lateral surface by the side of the anti-motor 1 of the case 4 of this control device 3. The heater element 6 of the control device 3 is attached to the medial surface by the side of the anti-motor 1 of the above-mentioned case 4. And the cooling fan device 7 is formed in the anti-control device 3 side of the radiation fin 5.

[0003]In the above-mentioned composition, the heat generated from the heater element 6 of the control device 3 gets across to the radiation fin 5 through the case 4, and by spraying further the cooling wind blows generated by the cooling fan device 7 on the radiation fin 5, it is constituted so that heat may be radiated from the radiation fin 5.

[0004]

[Problem(s) to be Solved by the Invention]The reason which needs the radiation fin 5 and the cooling fan device 7 in composition conventionally [ above-mentioned ] is for the quantity of heat generated from the heater element 6 of the control device 3 increasing, and radiating heat promptly in these heat of a

lot of as the capacity of the motor 1 becomes large. However, if the radiation fin 5 and the cooling fan device 7 are formed, the composition of the whole motor with a control device will large-sized-ize.

[0005]For this reason, it is requested by improving the cooling (heat dissipation) composition of a motor with a control device that a radiation fin and a cooling fan device should be made unnecessary as much as possible, and the composition of the whole motor with a control device should be miniaturized. Also in the composition which forms a radiation fin and a cooling fan device, a radiation fin is miniaturized by raising cooling (heat dissipation) performance further.

Miniaturizing the entire configuration of a motor with a control device is called for.

[0006]Then, the purpose of this invention can raise a cooling capability, and it is to provide the motor with a control device which can miniaturize the whole composition.

[0007]

[Means for Solving the Problem]In what attached to a motor in one a control device which carries out drive controlling of the motor, an omitted portion touches a pars basilaris ossis occipitalis of the peripheral parts of a case of said control device, or a frame of said motor, and a motor with a control device of this invention. It has a section [ of about U characters ]-like plate shape heat pipe provided so that an end part might touch a flank of said peripheral

parts, and has the feature at a place which allocated a heater element of said control device in an inner bottom of said case.

[0008]According to the above-mentioned composition, heat generated from a heater element of a control device gets across to an omitted portion of a plate shape heat pipe through a case, further, through a plate shape heat pipe, is promptly transmitted to an end part of a plate shape heat pipe, and radiates heat. Since a plate shape heat pipe was used in this composition, radiation performance becomes high and it becomes possible to cool a heater element enough by natural air cooling. Therefore, a radiation fin and a cooling fan device become unnecessary, and composition of the whole motor with a control device becomes small.

[0009]In the above-mentioned composition, it is preferred to provide a radiation fin in an end part of a plate shape heat pipe. A plate shape heat pipe is wound around spiral shape at a peripheral part of a case of a control device, or a frame of a motor, and it is much more preferred to allocate a cut-water end and an end-of-the-winding part of this plate shape heat pipe in a top part of the peripheral parts of a case or a frame.

[0010]A linear radiation fin which has again two or more tabular fins which were able to put a radiation fin in order almost in parallel constitutes, and it is desirable composition to set the direction of fin trains of this linear radiation fin as